



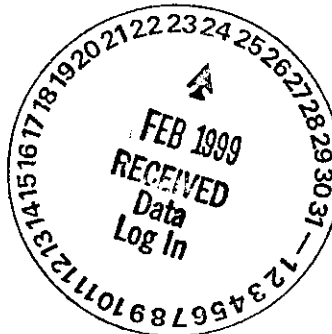
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WASTE MANAGEMENT FEDERAL SERVICES  
OF HANFORD, INC.  
A WASTE MANAGEMENT COMPANY

P.O. Box 700  
Richland, WA 99352-0700

February 22, 1999

WMH-9951023

J. H. Kessner, Program Manager  
Analytical Services  
Bechtel Hanford, Inc. H9-03  
Post Office Box 969  
Richland, Washington 99352



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Dear Ms. Kessner:

**FINAL REPORT FOR THE 1301-N/1325-N FACILITY SAMPLES**

Reference: Letter, R. L. Donahoe, Bechtel, to J. L. Jacobson, FDH, "Letter of Instruction for the 1301-N/1325-N Facility Sample Analysis," Letter 064154 (100NR1-LO1-001), dated December 16, 1998.

This letter serves as the final analytical summary report for the eight soil samples received from the 1301-N/1325-N Facility. Analyses were performed in accordance with the letter of Instruction referenced above. The attachments provide the following information.

Attachment 1	Narrative
Attachment 2	Data Summary Report
Attachment 3	Sample Breakdown Diagrams
Attachment 4	Chain-of-Custody Forms
Attachment 5	Sample Disposition Record
Attachment 6	Letter of Instruction for the 1301-N/1325-N Facility Sample Analysis.

If you have any questions, please call me at 373-4314.

Very Truly Yours,

R. A. Esch, Project Coordinator  
Analytical Production  
222-S Laboratory  
Waste Management Laboratory

lap/cmh

Attachments-6

**WMH 9951023**

**Attachment 1  
Narrative**

**Consisting of 6 pages,  
including cover page**

**WASTE MANAGEMENT LABORATORY**  
**FINAL REPORT FOR THE 1301-N/1325-N FACILITY SAMPLES**

This document is the final analytical summary report for the analysis of samples from the 1301-N and 1325-N Facilities. The 222-S Laboratory received eight soil samples from these facilities on December 22, 1998. Analyses were performed in accordance with the *Letter of Instruction for the 1301-N/1325-N Facility Sample Analysis* (LOI) (Donahoe 1998). The analytical results are included in the Data Summary Report (Attachment 2).

**Appearance and Sample Handling**

Attachment 3 is provided as a cross-reference for relating the customer identification numbers to the 222-S Laboratory sample numbers and the portion of sample analyzed.

Two sample delivery groups (SDG), each containing four samples, were received at the 222-S Laboratory on December 22, 1998. The first SDG was collected on December 17, 1998 and contained sample numbers BOTBY8, BOTBY9, BOTCO0 and BOTCO1. The second SDG was collected on December 21, 1998 and contained sample numbers BOTDJ1, BOTDJ2, BOTDJ3 and BOTDJ4.

The samples were all dry soil samples, with one exception. Sample BOTCO1 was wet, with water standing on the surface of the soil. It was difficult to make a visual observation of the samples through the bottles. Since no water was expected to be in the samples, no special instructions were provided prior to the acid digestion of the first SDG. However, following the acid digest, when the samples were being prepared for the TCLP digest, the standing water was noted because special handling is required for two phase samples for TCLP digest. A Sample Disposition Record (SDR) was received to provide instructions for the lab to dispose of the water without analysis. This SDR is included in Attachment 5. Note, however, that the acid digest was performed prior to discarding of the water.

**Analytical Results Summary**

The data summary report included as Attachment 2 presents the analytical results.

In this table, the aliquot class (A#) column indicates the type of preparation performed prior to analysis. An "A" indicates the acid digestion of the solid, a "C" the acid digestion of the

Toxicity Characteristics Leachate Procedure (TCLP) extract and a "T" the direct analysis of the TCLP extract.

The LOI (Donahoe 1998) requested that the TCLP analyses be performed in accordance with SW-846 methods. The procedures used by the 222-S Laboratory are considered SW-846 equivalent. Deviations are made to accommodate smaller sample sizes for handling samples with radionuclides present. Reagent volumes are reduced proportional to the reduced sample size.

### **Quality Control (QC)**

A standard and preparation blank was analyzed with every batch. No duplicate or spike analyses were performed. The standard recoveries for the radionuclides were all within the acceptance limits of the methods. The standard results reported with the mercury and inductively coupled plasma (ICP) TCLP analyses in Attachment 2 reflect the recoveries of a certified standard that went through the leaching process. Mercury, barium, chromium and lead all had low recoveries (< 80% recovery) for this standard. The instrument control standard recoveries for these analytes were all within the acceptance limits of the methods. Since the analysis of a leached standard was not required by the TCLP method and any detectable quantities of these analytes were less than 5% of the regulatory levels of concern for TCLP, no reanalysis was performed.

### **Detection Limits**

The LOI (Donahoe 1998) listed specific practical quantitation limits (PQLs) that the laboratory was requested to meet whenever possible. The PQLs were met for the TCLP metals, total alpha, total beta and strontium-90 ( $^{90}\text{Sr}$ ) analyses.

The detection limits that were reported for plutonium-238 ( $^{238}\text{Pu}$ ), plutonium-239 ( $^{239}\text{Pu}$ ) and americium-241 ( $^{241}\text{Am}$ ) by separation/alpha energy analysis were higher than the requested PQLs. However, since activity was detected for these three isotopes in all eight samples, it was considered inconsequential that the PQL was not met. The results for  $^{241}\text{Am}$  by gamma energy analysis (GEA) were reported as less than the detection limit. This detection limit was greater than the requested PQL because of the detected activity of higher energy gamma emitters.

For cobalt-60 ( $^{60}\text{Co}$ ) and cesium-137 ( $^{137}\text{Cs}$ ), that have a detectable amount of activity in all eight samples, the GEA software does not calculate instrument detection limits due to potential interferences from other gamma emitting nuclides. In this case, the detection limit (DL) is reported as "n/a".

## **Holding Times**

The SW-846 holding times for the TCLP extraction and subsequent analysis of metals were met for all eight samples.

## **Method Specific Discussion**

The methods discussed below had discrepancies or anomalies that warranted further discussion.

### Toxicity Characteristics Leachate Procedure (TCLP)

The LOI (Donahoe 1998) requested analysis of TCLP metals. The SW-846 method for TCLP specifies the following metals for this analysis: arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver. However, the LOI also listed nickel as one of the requested metals. Since nickel is not a typical TCLP metal, it was not reported in Attachment 2. The request for nickel results was discussed with the ERC point of contact to determine the applicability of the request. The raw data for nickel are available and the results can be reported in a separate letter report, if required. A brief review of the data indicated that the results were at or below the detection limit of approximately 0.08 µg/mL in the TCLP extract.

### Inductively Coupled Plasma (ICP)

Silver (Ag) and barium (Ba) were detected in the TCLP extracts of all eight samples. Some of the samples also had detectable quantities of cadmium (Cd) and chromium (Cr). All detected concentrations were at least a factor of 100 below the regulatory levels for TCLP extractions.

Silver was detected in the preparation blank that was carried through the TCLP extraction. The concentration in the blank was nearly the same as that reported for the sample. This is an indication of contamination in the extracts. However, since the concentration detected in the blank was much less than 5% of the regulatory levels of concern for Ag in TCLP extracts, the contamination was considered insignificant and no re-extraction or reanalysis was requested.

### Total Beta (TB) Analysis

Beta activity was detected in the preparation blank carried through the acid digestion for the first SDG. However, the activity detected was less than the requested PQL for gross beta and less than 5% of the activity reported for the samples. Therefore, the contamination was considered insignificant and no re-preparation or reanalysis was requested.

Strontium-90 ( $^{90}\text{Sr}$ )

Strontium-90 activity was detected in the preparation blank carried through the acid digestion for the second SDG. However, the activity detected was less than 5% of the activity reported for the samples, and the contamination was considered insignificant. No re-preparation or reanalysis was requested.

Procedures

Table 1 lists the analytical procedures used for performing the analyses for this project. Abbreviations for analyses are defined in the table notes.

Table 1: Analytical Procedures

Analysis	Preparation Procedure	Analysis Procedure
<b>Inorganic Analyses</b>		
ICP	TCLP Extraction/Acid Digestion	LA-505-161 Rev. C-3
Hg	TCLP Extraction	LA-325-106 Rev. A-0
<b>Radionuclide Analyses</b>		
Total Alpha	Acid Digestion	LA-508-101 Rev. G-0
Total Beta	Acid Digestion	LA-508-101 Rev. G-0
GEA	Acid Digestion	LA-548-121 Rev. F-0
$^{90}\text{Sr}$	Acid Digestion	LA-220-101 Rev. E-3
$^{241}\text{Am}$	Acid Digestion	LA-953-104 Rev. B-1
$^{238/239/240}\text{Pu}$	Acid Digestion	LA-953-104 Rev. B-1

TCLP extraction procedure - LA-544-134 Rev. B-0

Acid digest procedure for TCLP extract - LA-505-164 Rev. B-0

Acid digest procedure for solids - LA-505-163 Rev. B-0

## Abbreviations:

ICP = inductively coupled plasma spectrometry  
 IC = ion chromatography  
 Hg = mercury  
 GEA = gamma energy analysis  
 $^{90}\text{Sr}$  = strontium-90  
 $^{241}\text{Am}$  = americium-241

$^{238/239/240}\text{Pu}$  = plutonium-238,  
 plutonium-239/240  
 TCLP = toxicity characteristics  
 leachate procedure

**References**

Donahoe, R. L., 1998, *Letter of Instruction for the 1301-N/1325-N Facility Sample Analysis*,  
(Letter number 100NR1-LOI-001 to J. L. Jacobsen, dated December 16), Bechtel  
Hanford, Inc., Richland WA 99352.

**WMH-9951023**

**Attachment 2  
Data Summary Report**

**Consisting of 9 pages,  
including cover page**

Data Summary Report  
N FACILITY

CORE NUMBER: n/a  
SEGMENT #: BOTBY8

SEGMENT PORTION: Acid digest

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S99M000001	A		Strontium-89/90 High Level	uCi/g	113.5	<1.93e-04	1.22e-02	n/a	n/a	n/a	n/a	4.01e-04	8.36E+00
S99M000001	A		Pu-239/240 by TRU-SPEC Resin	uCi/g	104.8	<5.74e-04	5.85e-03	n/a	n/a	n/a	n/a	7.47e-04	2.98E+00
S99M000001	A		Pu-238 by Ion Exchange	uCi/g	n/a	<5.74e-04	1.33e-03	n/a	n/a	n/a	n/a	7.47e-04	5.56E+00
S99M000001	A		Cobalt-60 by GEA	uCi/g	102.5	<3.28e-03	3.17e-01	n/a	n/a	n/a	n/a	n/a	2.73
S99M000001	A		Cesium-137 by GEA	uCi/g	99.04	<6.60e-03	9.62e-02	n/a	n/a	n/a	n/a	n/a	8.06
S99M000001	A		Americium-241 by GEA	uCi/g	n/a	<1.94e-02	<2.52e-02	n/a	n/a	n/a	n/a	2.50e-02	n/a
S99M000001	A		Am-241 by Extraction	uCi/g	101.9	<6.66e-04	4.15e-03	n/a	n/a	n/a	n/a	9.28e-04	3.44E+00
S99M000001	A		Alpha of Digested Solid	uCi/g	92.34	<1.13e-04	9.99e-03	n/a	n/a	n/a	n/a	1.79e-04	6.52E+00
S99M000001	A		Beta of Solid Sample	uCi/g	101.7	3.62e-04	4.44e-01	n/a	n/a	n/a	n/a	4.64e-04	7.51E-01

TCLP Acid digest: TCLP Acid digest

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S99M000017	C		Silver -ICP-TCLP Digest-Liquid	ug/mL	89.30	8.39e-02	9.53e-02	n/a	n/a	n/a	n/a	3.70e-02	n/a
S99M000017	C		Arsenic -ICP-TCLP Digest-Liq	ug/mL	98.40	<3.00e-01	<3.75e-01	n/a	n/a	n/a	n/a	3.75e-01	n/a
S99M000017	C		Barium -ICP-TCLP Digest-Liquid	ug/mL	76.41	<5.00e-02	8.11e-01	n/a	n/a	n/a	n/a	1.88e-01	n/a
S99M000017	C		Cadmium -ICP-TCLP Digest-Liq	ug/mL	85.16	<5.00e-03	<1.88e-02	n/a	n/a	n/a	n/a	1.90e-02	n/a
S99M000017	C		Chromium -ICP-TCLP Digest-Liq	ug/mL	32.79	<3.00e-02	<3.75e-02	n/a	n/a	n/a	n/a	3.70e-02	n/a
S99M000017	C		Lead -ICP-TCLP Digest-Liquid	ug/mL	71.49	<3.00e-01	<3.75e-01	n/a	n/a	n/a	n/a	3.75e-01	n/a
S99M000017	C		Selenium -ICP-TCLP Digest-Liq	ug/mL	97.40	<3.00e-01	<3.75e-01	n/a	n/a	n/a	n/a	3.75e-01	n/a

TCLP extract: TCLP extract

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S99M000009	T		Mercury by CVAA (PE) with FIAS	ug/mL	37.88	<7.10e-05	<1.4e-3	<1.4e-3	n/a	n/a	104.0	2.00e-04	n/a

Data Summary Report  
N FACILITY

CORE NUMBER: n/a  
SEGMENT #: BOTBY9

SEGMENT PORTION: Acid digest

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S99M000002	A		Strontium-89/90 High Level	uCi/g	113.5	<1.93e-04	8.97e-03	n/a	n/a	n/a	n/a	4.11e-04	1.00E+01
S99M000002	A		Pu-239/240 by TRU-SPEC Resin	uCi/g	104.8	<5.74e-04	8.69e-03	n/a	n/a	n/a	n/a	9.01e-04	2.56E+00
S99M000002	A		Pu-238 by Ion Exchange	uCi/g	n/a	<5.74e-04	2.09e-03	n/a	n/a	n/a	n/a	9.01e-04	4.47E+00
S99M000002	A		Cobalt-60 by GEA	uCi/g	102.5	<3.28e-03	5.58e-01	n/a	n/a	n/a	n/a	n/a	2.10
S99M000002	A		Cesium-137 by GEA	uCi/g	99.04	<6.60e-03	1.00e-01	n/a	n/a	n/a	n/a	n/a	9.00
S99M000002	A		Americium-241 by GEA	uCi/g	n/a	<1.94e-02	<2.92e-02	n/a	n/a	n/a	n/a	2.90e-02	n/a
S99M000002	A		Am-241 by Extraction	uCi/g	101.9	<6.66e-04	6.67e-03	n/a	n/a	n/a	n/a	1.00e-03	2.76E+00
S99M000002	A		Alpha of Digested Solid	uCi/g	92.34	<1.13e-04	1.50e-02	n/a	n/a	n/a	n/a	1.85e-04	5.48E+00
S99M000002	A		Beta of Solid Sample	uCi/g	101.7	3.62e-04	6.65e-01	n/a	n/a	n/a	n/a	4.81e-04	6.34E-01

TCLP Acid digest: TCLP Acid digest

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S99M000018	C		Silver -ICP-TCLP Digest-Liquid	ug/mL	89.30	8.39e-02	8.50e-02	n/a	n/a	n/a	n/a	3.70e-02	n/a
S99M000018	C		Arsenic -ICP-TCLP Digest-Liq	ug/mL	98.40	<3.00e-01	<3.75e-01	n/a	n/a	n/a	n/a	3.75e-01	n/a
S99M000018	C		Barium -ICP-TCLP Digest-Liquid	ug/mL	76.41	<5.00e-02	9.34e-01	n/a	n/a	n/a	n/a	1.88e-01	n/a
S99M000018	C		Cadmium -ICP-TCLP Digest-Liq	ug/mL	85.16	<5.00e-03	<1.88e-02	n/a	n/a	n/a	n/a	1.90e-02	n/a
S99M000018	C		Chromium -ICP-TCLP Digest-Liq	ug/mL	32.79	<3.00e-02	<3.75e-02	n/a	n/a	n/a	n/a	3.70e-02	n/a
S99M000018	C		Lead -ICP-TCLP Digest-Liquid	ug/mL	71.49	<3.00e-01	<3.75e-01	n/a	n/a	n/a	n/a	3.75e-01	n/a
S99M000018	C		Selenium -ICP-TCLP Digest-Liq	ug/mL	97.40	<3.00e-01	<3.75e-01	n/a	n/a	n/a	n/a	3.75e-01	n/a

TCLP extract: TCLP extract

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S99M000010	T		Mercury by CVAA (PE) with FIAS	ug/mL	37.88	<7.10e-05	<1.4e-3	<1.4e-3	n/a	n/a	n/a	1.00e-03	n/a

Data Summary Report  
N FACILITY

CORE NUMBER: n/a

SEGMENT #: BOTC00

SEGMENT PORTION: Acid digest

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S99M000003		A	Strontium-89/90 High Level	uCi/g	113.5	<1.93e-04	1.65e-02	n/a	n/a	n/a	n/a	4.01e-04	7.10E+00
S99M000003		A	Pu-239/240 by TRU-SPEC Resin	uCi/g	104.8	<5.74e-04	1.27e-02	n/a	n/a	n/a	n/a	1.00e-03	2.30E+00
S99M000003		A	Pu-238 by Ion Exchange	uCi/g	n/a	<5.74e-04	2.55e-03	n/a	n/a	n/a	n/a	1.00e-03	4.10E+00
S99M000003		A	Cobalt-60 by GEA	uCi/g	102.5	<3.28e-03	7.15e-01	n/a	n/a	n/a	n/a	n/a	1.88
S99M000003		A	Cesium-137 by GEA	uCi/g	99.04	<6.60e-03	1.59e-01	n/a	n/a	n/a	n/a	n/a	6.76
S99M000003		A	Americium-241 by GEA	uCi/g	n/a	<1.94e-02	<3.15e-02	n/a	n/a	n/a	n/a	3.20e-02	n/a
S99M000003		A	Am-241 by Extraction	uCi/g	101.9	<6.66e-04	9.01e-03	n/a	n/a	n/a	n/a	1.00e-03	2.75E+00
S99M000003		A	Alpha of Digested Solid	uCi/g	92.34	<1.13e-04	2.09e-02	n/a	n/a	n/a	n/a	1.80e-04	4.51E+00
S99M000003		A	Beta of Solid Sample	uCi/g	101.7	3.62e-04	9.04e-01	n/a	n/a	n/a	n/a	4.66e-04	5.27E-01

TCLP Acid digest: TCLP Acid digest

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S99M000019		C	Silver -ICP-TCLP Digest-Liquid	ug/mL	91.10	8.14e-02	9.84e-02	n/a	n/a	n/a	n/a	3.70e-02	n/a
S99M000019		C	Arsenic -ICP-TCLP Digest-Liq	ug/mL	98.20	<3.00e-01	<3.75e-01	n/a	n/a	n/a	n/a	3.75e-01	n/a
S99M000019		C	Barium -ICP-TCLP Digest-Liquid	ug/mL	83.93	<5.00e-02	9.94e-01	n/a	n/a	n/a	n/a	1.88e-01	n/a
S99M000019		C	Cadmium -ICP-TCLP Digest-Liq	ug/mL	86.69	<5.00e-03	<1.88e-02	n/a	n/a	n/a	n/a	1.90e-02	n/a
S99M000019		C	Chromium -ICP-TCLP Digest-Liq	ug/mL	35.59	<3.00e-02	4.55e-02	n/a	n/a	n/a	n/a	3.70e-02	n/a
S99M000019		C	Lead -ICP-TCLP Digest-Liquid	ug/mL	74.78	<3.00e-01	<3.75e-01	n/a	n/a	n/a	n/a	3.75e-01	n/a
S99M000019		C	Selenium -ICP-TCLP Digest-Liq	ug/mL	97.00	<3.00e-01	<3.75e-01	n/a	n/a	n/a	n/a	3.75e-01	n/a

TCLP extract: TCLP extract

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S99M000011		T	Mercury by CVAA (PE) with FIAS	ug/mL	40.14	<7.10e-05	<1.4e-3	<1.4e-3	n/a	n/a	101.6	2.00e-04	n/a

Data Summary Report  
N FACILITY

CORE NUMBER: n/a  
SEGMENT #: BOTCO1

SEGMENT PORTION: Acid digest

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S99M000004	A		Strontium-89/90 High Level	uCi/g	113.5	<1.93e-04	5.50e-02	n/a	n/a	n/a	n/a	4.02e-04	3.82E+00
S99M000004	A		Pu-239/240 by TRU-SPEC Resin	uCi/g	104.8	<5.74e-04	5.21e-02	n/a	n/a	n/a	n/a	3.00e-03	1.82E+00
S99M000004	A		Pu-238 by Ion Exchange	uCi/g	n/a	<5.74e-04	9.62e-03	n/a	n/a	n/a	n/a	3.00e-03	2.59E+00
S99M000004	A		Cobalt-60 by GEA	uCi/g	102.5	<3.28e-03	2.250	n/a	n/a	n/a	n/a	n/a	1.05
S99M000004	A		Cesium-137 by GEA	uCi/g	99.04	<6.60e-03	3.01e-01	n/a	n/a	n/a	n/a	n/a	4.64
S99M000004	A		Americium-241 by GEA	uCi/g	n/a	<1.94e-02	<7.13e-02	n/a	n/a	n/a	n/a	7.10e-02	n/a
S99M000004	A		Am-241 by Extraction	uCi/g	100.0	<2.31e-03	4.11e-02	n/a	n/a	n/a	n/a	5.00e-03	2.54E+00
S99M000004	A		Alpha of Digested Solid	uCi/g	92.34	<1.13e-04	8.46e-02	n/a	n/a	n/a	n/a	1.82e-04	2.26E+00
S99M000004	A		Beta of Solid Sample	uCi/g	101.7	3.62e-04	2.840	n/a	n/a	n/a	n/a	4.73e-04	3.00E-01

TCLP Acid digest: TCLP Acid digest

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S99M000020	C		Silver -ICP-TCLP Digest-Liquid	ug/mL	91.10	8.14e-02	1.02e-01	n/a	n/a	n/a	n/a	3.70e-02	n/a
S99M000020	C		Arsenic -ICP-TCLP Digest-Liq	ug/mL	98.20	<3.00e-01	<3.75e-01	n/a	n/a	n/a	n/a	3.75e-01	n/a
S99M000020	C		Barium -ICP-TCLP Digest-Liquid	ug/mL	83.93	<5.00e-02	7.49e-01	n/a	n/a	n/a	n/a	1.88e-01	n/a
S99M000020	C		Cadmium -ICP-TCLP Digest-Liq	ug/mL	86.69	<5.00e-03	2.72e-02	n/a	n/a	n/a	n/a	1.90e-02	n/a
S99M000020	C		Chromium -ICP-TCLP Digest-Liq	ug/mL	35.59	<3.00e-02	<3.75e-02	n/a	n/a	n/a	n/a	3.70e-02	n/a
S99M000020	C		Lead -ICP-TCLP Digest-Liquid	ug/mL	74.78	<3.00e-01	<3.75e-01	n/a	n/a	n/a	n/a	3.75e-01	n/a
S99M000020	C		Selenium -ICP-TCLP Digest-Liq	ug/mL	97.00	<3.00e-01	<3.75e-01	n/a	n/a	n/a	n/a	3.75e-01	n/a

TCLP extract: TCLP extract

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S99M000012	T		Mercury by CVAA (PE) with FIAS	ug/mL	40.14	<7.10e-05	<1.4e-3	n/a	n/a	n/a	n/a	2.00e-04	n/a

Data Summary Report  
N FACILITY

CORE NUMBER: n/a  
SEGMENT #: BOTDJ1

SEGMENT PORTION: Acid digest

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S99M000005	A		Strontium-89/90 High Level	uCi/g	100.0	1.00e-03	2.49e-02	n/a	n/a	n/a	n/a	4.42e-04	5.97E+00
S99M000005	A		Pu-239/240 by TRU-SPEC Resin	uCi/g	98.41	<4.66e-04	1.58e-02	n/a	n/a	n/a	n/a	1.00e-03	2.05E+00
S99M000005	A		Pu-238 by Ion Exchange	uCi/g	n/a	<4.66e-04	4.70e-03	n/a	n/a	n/a	n/a	1.00e-03	3.04E+00
S99M000005	A		Cobalt-60 by GEA	uCi/g	103.1	<3.64e-03	1.003	n/a	n/a	n/a	n/a	n/a	1.60
S99M000005	A		Cesium-137 by GEA	uCi/g	100.9	<7.10e-03	4.29e-01	n/a	n/a	n/a	n/a	n/a	3.55
S99M000005	A		Americium-241 by GEA	uCi/g	n/a	<2.16e-02	<3.98e-02	n/a	n/a	n/a	n/a	4.00e-02	n/a
S99M000005	A		Am-241 by Extraction	uCi/g	115.9	<6.38e-04	1.87e-02	n/a	n/a	n/a	n/a	2.00e-03	2.25E+00
S99M000005	A		Alpha of Digested Solid	uCi/g	94.64	<5.64e-05	3.48e-02	n/a	n/a	n/a	n/a	1.22e-04	3.55E+00
S99M000005	A		Beta of Solid Sample	uCi/g	104.5	<5.11e-04	1.470	n/a	n/a	n/a	n/a	6.91e-04	4.32E-01

TCLP Acid digest: TCLP Acid digest

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S99M000021	C		Silver -ICP-TCLP Digest-Liquid	ug/mL	89.90	8.16e-02	1.04e-01	n/a	n/a	n/a	n/a	5.00e-02	n/a
S99M000021	C		Arsenic -ICP-TCLP Digest-Liq	ug/mL	96.80	<4.00e-01	<5.00e-01	n/a	n/a	n/a	n/a	5.00e-01	n/a
S99M000021	C		Barium -ICP-TCLP Digest-Liquid	ug/mL	76.40	<5.00e-02	3.66e-01	n/a	n/a	n/a	n/a	2.50e-01	n/a
S99M000021	C		Cadmium -ICP-TCLP Digest-Liq	ug/mL	92.30	<5.00e-03	7.33e-02	n/a	n/a	n/a	n/a	2.50e-02	n/a
S99M000021	C		Chromium -ICP-TCLP Digest-Liq	ug/mL	36.76	<4.00e-02	1.37e-01	n/a	n/a	n/a	n/a	5.00e-02	n/a
S99M000021	C		Lead -ICP-TCLP Digest-Liquid	ug/mL	78.08	<4.00e-01	<5.00e-01	n/a	n/a	n/a	n/a	5.00e-01	n/a
S99M000021	C		Selenium -ICP-TCLP Digest-Liq	ug/mL	95.00	<4.00e-01	<5.00e-01	n/a	n/a	n/a	n/a	5.00e-01	n/a

TCLP extract: TCLP extract

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S99M000013	T		Mercury by CVAA (PE) with FIAS	ug/mL	32.26	<7.10e-05	<1.4e-3	n/a	n/a	n/a	n/a	2.00e-04	n/a

Data Summary Report  
N FACILITY

CORE NUMBER: n/a  
SEGMENT #: BOTDJ2

SEGMENT PORTION: Acid digest

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S99M000006	A		Strontium-89/90 High Level	uCi/g	100.0	1.00e-03	3.61e-02	n/a	n/a	n/a	n/a	4.15e-04	4.77E+00
S99M000006	A		Pu-239/240 by TRU-SPEC Resin	uCi/g	98.41	<4.66e-04	1.82e-02	n/a	n/a	n/a	n/a	1.00e-03	2.03E+00
S99M000006	A		Pu-238 by Ion Exchange	uCi/g	n/a	<4.66e-04	5.31e-03	n/a	n/a	n/a	n/a	1.00e-03	2.95E+00
S99M000006	A		Cobalt-60 by GEA	uCi/g	103.1	<3.64e-03	1.032	n/a	n/a	n/a	n/a	n/a	1.57
S99M000006	A		Cesium-137 by GEA	uCi/g	100.9	<7.10e-03	3.33e-01	n/a	n/a	n/a	n/a	n/a	4.04
S99M000006	A		Americium-241 by GEA	uCi/g	n/a	<2.16e-02	<3.96e-02	n/a	n/a	n/a	n/a	4.00e-02	n/a
S99M000006	A		Am-241 by Extraction	uCi/g	115.9	<6.38e-04	1.60e-02	n/a	n/a	n/a	n/a	1.00e-03	2.26E+00
S99M000006	A		Alpha of Digested Solid	uCi/g	94.64	<5.64e-05	3.40e-02	n/a	n/a	n/a	n/a	1.18e-04	3.54E+00
S99M000006	A		Beta of Solid Sample	uCi/g	104.5	<5.11e-04	1.390	n/a	n/a	n/a	n/a	6.68e-04	4.37E-01

TCLP Acid digest: TCLP Acid digest

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S99M000022	C		Silver -ICP-TCLP Digest-Liquid	ug/mL	89.90	8.16e-02	1.02e-01	n/a	n/a	n/a	n/a	5.00e-02	n/a
S99M000022	C		Arsenic -ICP-TCLP Digest-Liq	ug/mL	96.80	<4.00e-01	<5.00e-01	n/a	n/a	n/a	n/a	5.00e-01	n/a
S99M000022	C		Barium -ICP-TCLP Digest-Liquid	ug/mL	76.40	<5.00e-02	7.54e-01	n/a	n/a	n/a	n/a	2.50e-01	n/a
S99M000022	C		Cadmium -ICP-TCLP Digest-Liq	ug/mL	92.30	<5.00e-03	5.62e-02	n/a	n/a	n/a	n/a	2.50e-02	n/a
S99M000022	C		Chromium -ICP-TCLP Digest-Liq	ug/mL	36.76	<4.00e-02	4.05e-01	n/a	n/a	n/a	n/a	5.00e-02	n/a
S99M000022	C		Lead -ICP-TCLP Digest-Liquid	ug/mL	78.08	<4.00e-01	<5.00e-01	n/a	n/a	n/a	n/a	5.00e-01	n/a
S99M000022	C		Selenium -ICP-TCLP Digest-Liq	ug/mL	95.00	<4.00e-01	<5.00e-01	n/a	n/a	n/a	n/a	5.00e-01	n/a

TCLP extract: TCLP extract

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S99M000014	T		Mercury by CVAA (PE) with FIAS	ug/mL	32.26	<7.10e-05	<1.4e-3	n/a	n/a	n/a	n/a	2.00e-04	n/a

Data Summary Report  
N FACILITY

CORE NUMBER: n/a  
SEGMENT #: BOTDJ3

SEGMENT PORTION: Acid digest

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S99M000008	A		Strontium-89/90 High Level	uCi/g	100.0	1.00e-03	2.68e-02	n/a	n/a	n/a	n/a	4.28e-04	5.65E+00
S99M000008	A		Pu-239/240 by TRU-SPEC Resin	uCi/g	98.41	<4.66e-04	1.84e-02	n/a	n/a	n/a	n/a	1.00e-03	1.85E+00
S99M000008	A		Pu-238 by Ion Exchange	uCi/g	n/a	<4.66e-04	2.98e-03	n/a	n/a	n/a	n/a	1.00e-03	3.41E+00
S99M000008	A		Cobalt-60 by GEA	uCi/g	103.1	<3.64e-03	1.003	n/a	n/a	n/a	n/a	n/a	1.61
S99M000008	A		Cesium-137 by GEA	uCi/g	100.9	<7.10e-03	2.51e-01	n/a	n/a	n/a	n/a	n/a	4.69
S99M000008	A		Americium-241 by GEA	uCi/g	n/a	<2.16e-02	<3.79e-02	n/a	n/a	n/a	n/a	3.80e-02	n/a
S99M000008	A		Am-241 by Extraction	uCi/g	115.9	<6.38e-04	1.99e-02	n/a	n/a	n/a	n/a	2.00e-03	2.30E+00
S99M000008	A		Alpha of Digested Solid	uCi/g	94.64	<5.64e-05	3.85e-02	n/a	n/a	n/a	n/a	1.23e-04	3.42E+00
S99M000008	A		Beta of Solid Sample	uCi/g	104.5	<5.11e-04	1.300	n/a	n/a	n/a	n/a	6.96e-04	4.61E+01

TCLP Acid digest: TCLP Acid digest

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S99M000024	C		Silver -ICP-TCLP Digest-Liquid	ug/mL	88.70	8.07e-02	9.02e-02	n/a	n/a	n/a	n/a	3.70e-02	n/a
S99M000024	C		Arsenic -ICP-TCLP Digest-Liq	ug/mL	96.20	<3.00e-01	<3.75e-01	n/a	n/a	n/a	n/a	3.75e-01	n/a
S99M000024	C		Barium -ICP-TCLP Digest-Liquid	ug/mL	66.67	<5.00e-02	9.37e-01	n/a	n/a	n/a	n/a	1.88e-01	n/a
S99M000024	C		Cadmium -ICP-TCLP Digest-Liq	ug/mL	87.71	<5.00e-03	<1.88e-02	n/a	n/a	n/a	n/a	1.90e-02	n/a
S99M000024	C		Chromium -ICP-TCLP Digest-Liq	ug/mL	34.14	<3.00e-02	1.37e-01	n/a	n/a	n/a	n/a	3.70e-02	n/a
S99M000024	C		Lead -ICP-TCLP Digest-Liquid	ug/mL	73.96	<3.00e-01	<3.75e-01	n/a	n/a	n/a	n/a	3.75e-01	n/a
S99M000024	C		Selenium -ICP-TCLP Digest-Liq	ug/mL	96.00	<3.00e-01	<3.75e-01	n/a	n/a	n/a	n/a	3.75e-01	n/a

TCLP extract: TCLP extract

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S99M000016	T		Mercury by CVAA (PE) with FIAS	ug/mL	37.10	<7.10e-05	<1.4e-3	n/a	n/a	n/a	n/a	1.00e-03	n/a

Data Summary Report  
N FACILITY

CORE NUMBER: n/a  
SEGMENT #: BOTDJ4

SEGMENT PORTION: Acid digest

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S99M000007	A		Strontium-89/90 High Level	uCi/g	100.0	1.00e-03	1.32e-01	n/a	n/a	n/a	n/a	4.21e-04	2.49E+00
S99M000007	A		Pu-239/240 by TRU-SPEC Resin	uCi/g	98.41	<4.66e-04	5.22e-02	n/a	n/a	n/a	n/a	3.00e-03	1.71E+00
S99M000007	A		Pu-238 by Ion Exchange	uCi/g	n/a	<4.66e-04	1.05e-02	n/a	n/a	n/a	n/a	3.00e-03	2.37E+00
S99M000007	A		Cobalt-60 by GEA	uCi/g	103.1	<3.64e-03	2.754	n/a	n/a	n/a	n/a	n/a	0.950
S99M000007	A		Cesium-137 by GEA	uCi/g	100.9	<7.10e-03	4.12e-01	n/a	n/a	n/a	n/a	n/a	4.42
S99M000007	A		Americium-241 by GEA	uCi/g	n/a	<2.16e-02	<5.42e-02	n/a	n/a	n/a	n/a	5.40e-02	n/a
S99M000007	A		Am-241 by Extraction	uCi/g	115.9	<6.38e-04	4.47e-02	n/a	n/a	n/a	n/a	3.00e-03	1.93E+00
S99M000007	A		Alpha of Digested Solid	uCi/g	94.64	<5.64e-05	8.50e-02	n/a	n/a	n/a	n/a	1.19e-04	2.24E+00
S99M000007	A		Beta of Solid Sample	uCi/g	104.5	<5.11e-04	3.100	n/a	n/a	n/a	n/a	6.76e-04	2.95E-01

TCLP Acid digest: TCLP Acid digest

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S99M000023	C		Silver -ICP-TCLP Digest-Liquid	ug/mL	88.70	8.07e-02	9.45e-02	n/a	n/a	n/a	n/a	3.70e-02	n/a
S99M000023	C		Arsenic -ICP-TCLP Digest-Liq	ug/mL	96.20	<3.00e-01	<3.75e-01	n/a	n/a	n/a	n/a	3.75e-01	n/a
S99M000023	C		Barium -ICP-TCLP Digest-Liquid	ug/mL	66.67	<5.00e-02	<1.88e-01	n/a	n/a	n/a	n/a	1.88e-01	n/a
S99M000023	C		Cadmium -ICP-TCLP Digest-Liq	ug/mL	87.71	<5.00e-03	1.40e-01	n/a	n/a	n/a	n/a	1.90e-02	n/a
S99M000023	C		Chromium -ICP-TCLP Digest-Liq	ug/mL	34.14	<3.00e-02	<3.75e-02	n/a	n/a	n/a	n/a	3.70e-02	n/a
S99M000023	C		Lead -ICP-TCLP Digest-Liquid	ug/mL	73.96	<3.00e-01	<3.75e-01	n/a	n/a	n/a	n/a	3.75e-01	n/a
S99M000023	C		Selenium -ICP-TCLP Digest-Liq	ug/mL	96.00	<3.00e-01	<3.75e-01	n/a	n/a	n/a	n/a	3.75e-01	n/a

TCLP extract: TCLP extract

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S99M000015	T		Mercury by CVAA (PE) with FIAS	ug/mL	37.10	<7.10e-05	<1.4e-3	<1.4e-3	n/a	n/a	110.8	1.00e-03	n/a

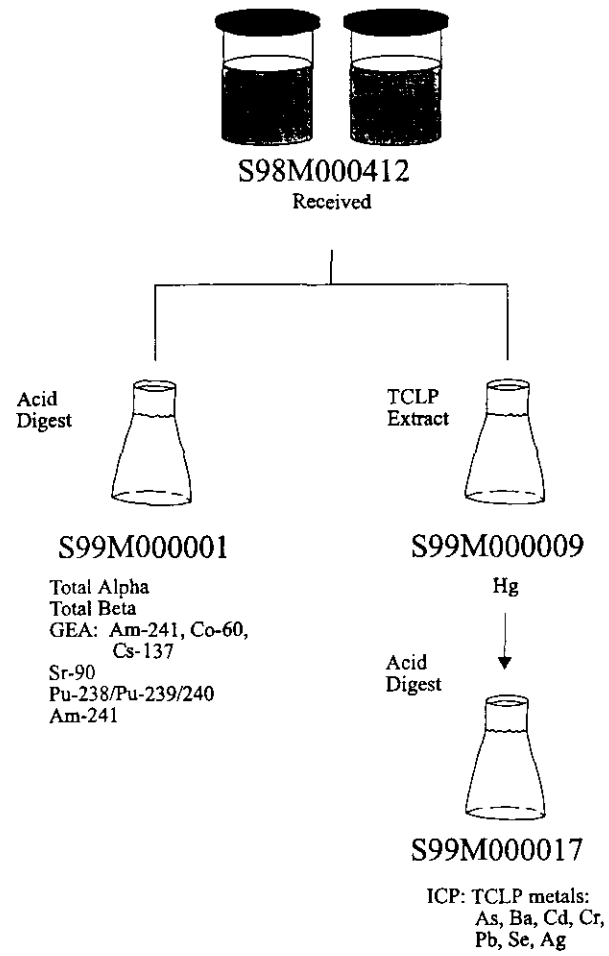
**WMH-9951023**

**Attachment 3**  
**Sample Breakdown Diagrams**

**Consisting of 9 pages,  
including cover page**

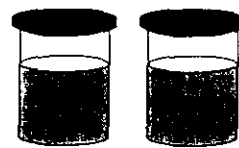
# 1301-N/1325-N Facility Samples

Soil Sample  
BOTBY8



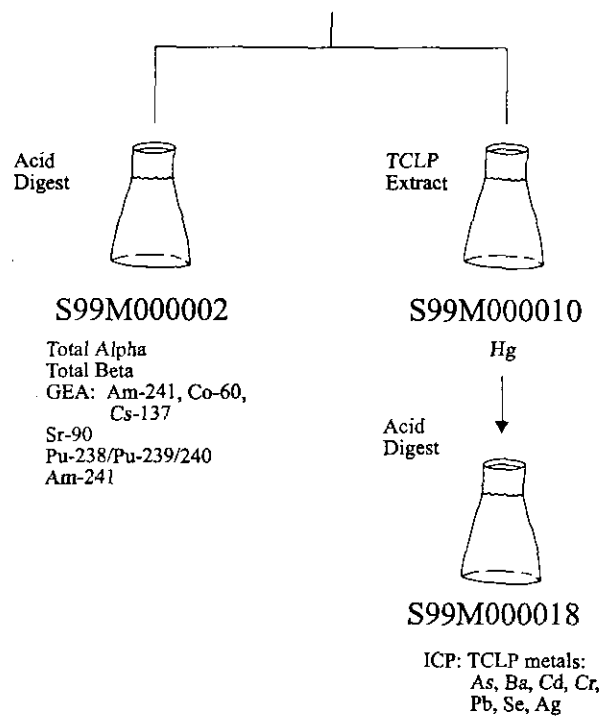
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BOTBY9



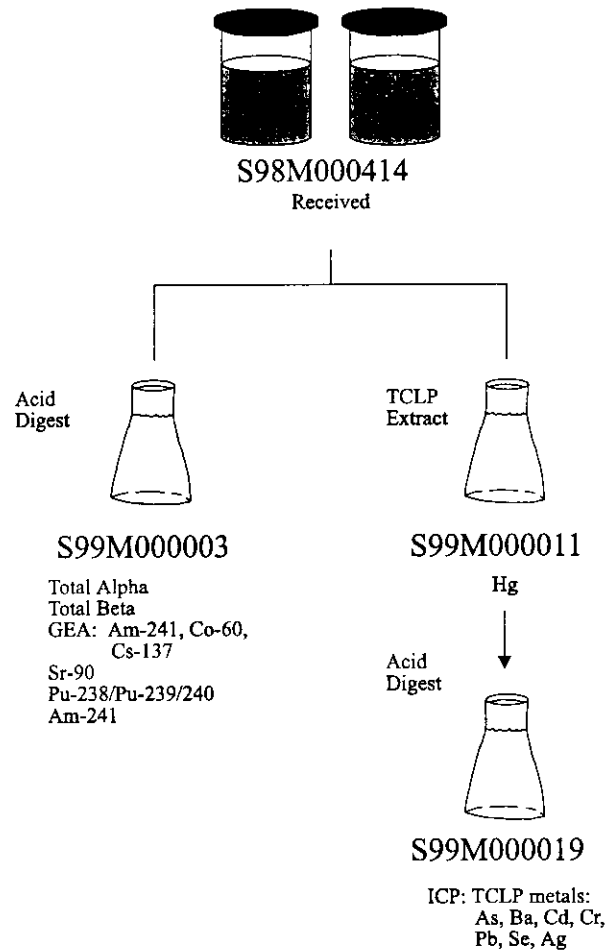
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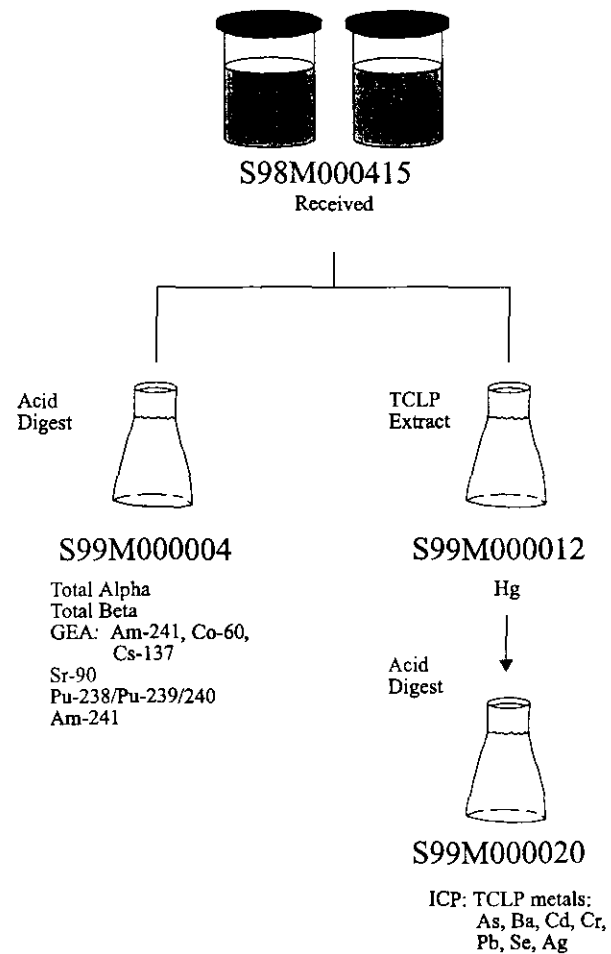
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Soil Sample  
BOTCO0



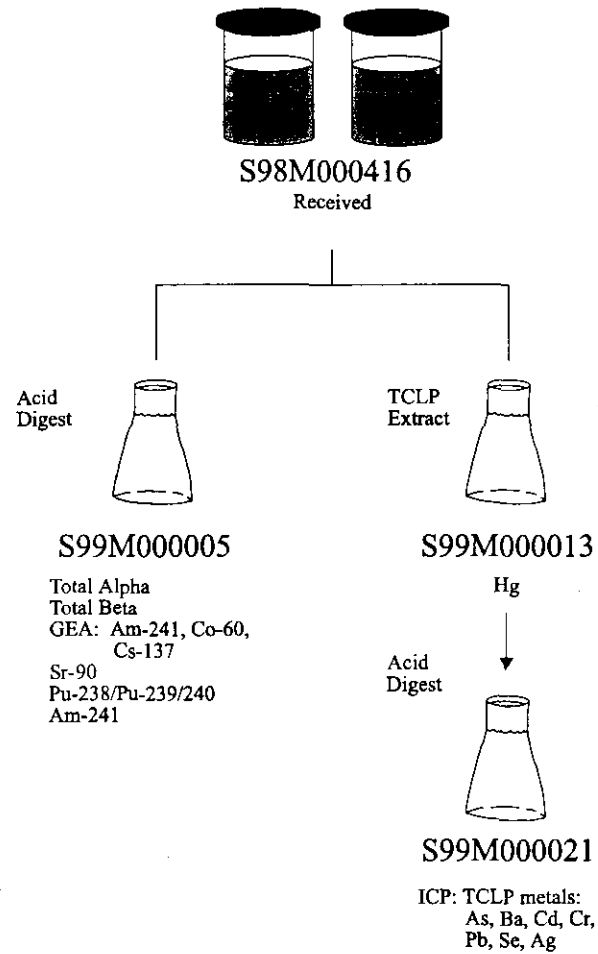
# 1301-N/1325-N Facility Samples

Soil Sample  
BOTCO1



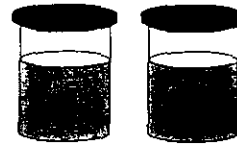
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Soil Sample  
BOTDJ1



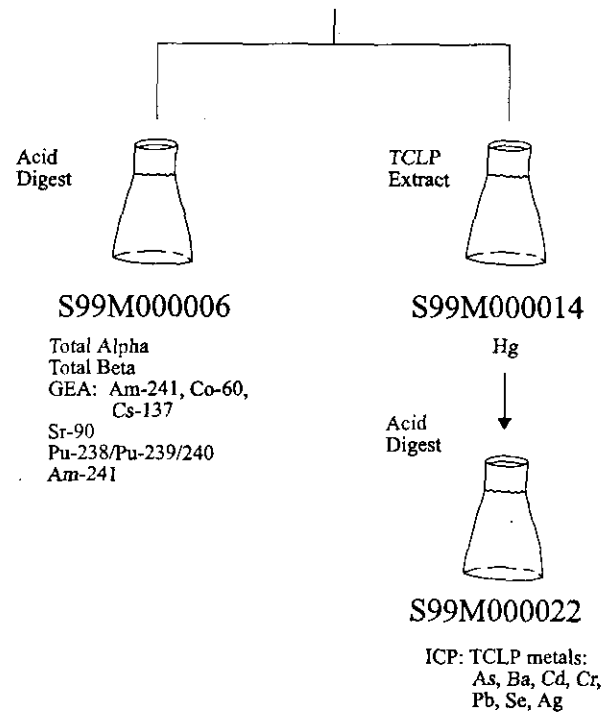
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Soil Sample  
BOTDJ2



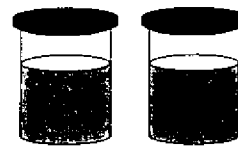
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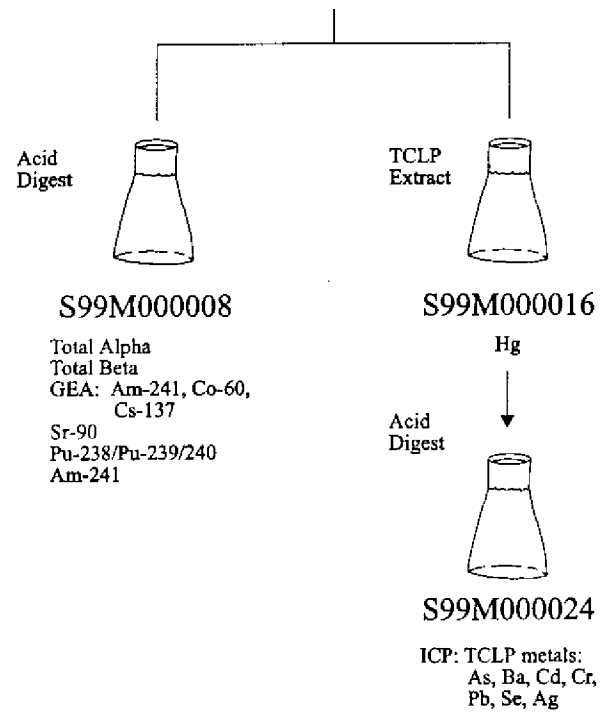
# 1301-N/1325-N Facility Samples

Soil Sample  
BOTDJ3



S98M000419

Received



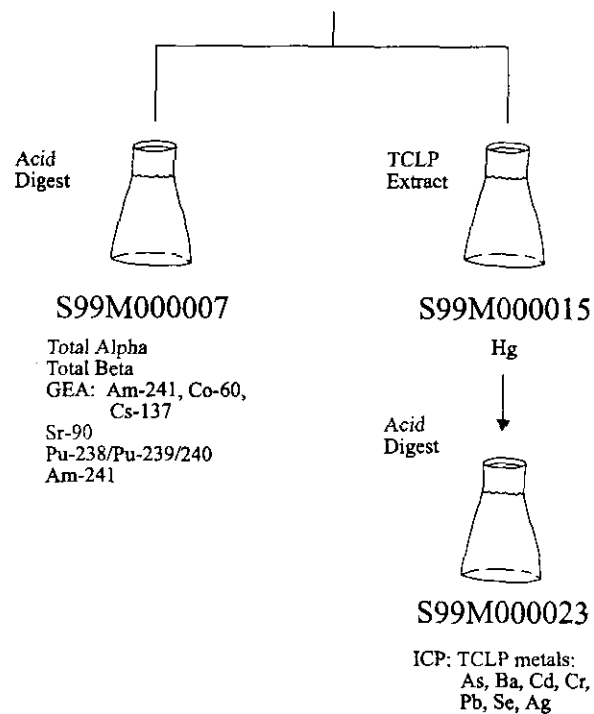
# 1301-N/1325-N Facility Samples

Soil Sample  
BOTDJ4



S98M000418

Received



**WMH-9951023**

**Attachment 4  
Chain of Custody Forms**

**Consisting of 4 pages,  
including cover page**

<b>Beechtel Hanford Inc.</b>		<b>CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST</b>				B99-039-01 DAS 12/22/98		Page 1 of 1			
Collector Doug Bowers/Jeff Gale		Company Contact Chuck Hodel		Telephone No. 372-9607		Project Coordinator TRENT SI		Price Code			
Project Designation 1301-N and 1325-N Facility Sampling and Analysis		Sampling Location 1301/1325 cribs 100N		SAF No. B99-039		<b>45 Days</b>					
Ice Chest No. Viking 5C 08/98050014		Field Logbook No. EPL 1133-6		Method of Shipment Fed Ex Hand Delivery - Govt Vehicle							
Shipped To MARPER 222-5 DAS 12/22/98		Offsite Property No. N/A		Bill of Lading/Air Bill No. N/A							
				COA CIINX4600C							
POSSIBLE SAMPLE HAZARDS/REMARKS  Radioactive   Special Handling and/or Storage				Preservation		None		None			
				Type of Container		aG		aG			
				No. of Container(s)		1		1			
				Volume		120mL		120mL			
SAMPLE ANALYSIS				See item (1) in Special Instructions.		Metals by ICP (ICLP) - 1311/6010, Mercury (ICLP) - 1311/7470					
Sample No.		Matrix *		Sample Date		Sample Time					
BOTBY8		Soil		12/17/98		1045		X X			
BOTBY9		Soil		12/17/98		1055		X X			
BOTCOO		Soil		12/17/98		1105		X X			
BOTCO1		Soil		12/17/98		1115		X X			
CHAIN OF POSSESSION		Sign/Print Names				SPECIAL INSTRUCTIONS  (1) Gross Alpha; Gross Beta; Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Isotopic Plutonium; Americium-241; Strontium-89,90 - Total Sr; Activity Scan				Matrix *  Soil Water Vapor Other Solid Other Liquid	
Relinquished By		Date/Time		Received By		Date/Time					
S. J. Thompson		12-22-98 11:45		S. J. Thompson		12-22-98 12:22					
Relinquished By		Date/Time		Received By		Date/Time					
S. J. Thompson		12-22-98 1410		S. J. Thompson		12-22-98 1410					
Relinquished By		Date/Time		Received By		Date/Time					
Relinquished By		Date/Time		Received By		Date/Time					
LABORATORY SECTION		Received By		Title				Date/Time			
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By				Date/Time			

10077

YVA 01:01 08/27/97



## REQUEST FOR SAMPLE ANALYSIS (RSA)

Group ID No. (For lab use only)

1. Sample Origin

1301-N/1325-N Facility

2. Date Sampled

12/22/98

4. Requestor's Name

Katherine L. Powell

5. TPCN

108868

7. Org. Code

31A00

Customer/Project Code

3. Submitted By

Steve Trent

5. Requestor's Phone/MSIN/FAX

373-7193 53-30 373-7132

8. Customer ID No.

9. Laboratory Sample No.

10. Volume of Sample

11. Matrix of Sample

12. Requested Analyses

13. Expected Range

11	BOTBY8 (2)	165g	Soil	See Analytical Instruction	
11	BOTBY9 (2)	165g	Soil	See Analytical Instructions	
11	BOTCO0 (2)	165g	Soil	See Analytical Instructions	
11	BOTCO1 (2)	165g	Soil	See Analytical Instructions	
11	BOTDJ1 (2)	165g	Soil	See Analytical Instructions	
11	BOTDJ2 (2)	165g	Soil	See Analytical Instructions	
11	BOTDJ4 (2)	165g	Soil	See Analytical Instructions	
11	BOTDJ3 (2)	165g	Soil	See Analytical Instructions	

14. Does sample have a MSDS?

☐ Yes HEHF assigned MSDS No. \_\_\_\_\_☒ No Description of process that produced waste/sample:

See Analytical Instruction

15. Is this sample RCRA listed?

☒ Yes☐ No

Applicable Listed Waste Codes:

☐ Yes ☐ No F Codes: (list) \_\_\_\_\_☐ Yes ☐ No U Codes: (list) \_\_\_\_\_☐ Yes ☐ No K Codes: (list) \_\_\_\_\_☒ Yes ☐ No F Codes: (list) methanol

Applicable Characteristic Codes:

☐ Yes ☐ No D001: (how determined) \_\_\_\_\_ Ignitable☐ Yes ☐ No D002: (how determined) \_\_\_\_\_ Corrosive☐ Yes ☐ No D003: (how determined) \_\_\_\_\_ Reactive☐ Yes ☐ No Toxic: (list codes) \_\_\_\_\_

PCB: Does this waste/sample contain PCBs?

☐ Yes Over 500 ppm☐ Yes Over 50 ppm☐ Yes PCBs are suspected☒ No PCBs are suspected

If YES, what is the source of the PCBs?

☐ Transformer, capacitor, or ballast☐ Other, specify \_\_\_\_\_☐ Unknown

16. Sample Disposition

☒ Return to Customer☐ Samples found to contain PCBs will be returned to the customer☐ Dispose of per facility procedures with applied charges for analyses and disposal

Sample Date Rate of Contact

165 samples for analysis - 105 samples for disposal

HPT Signature [Signature]

17. QC Required

☐ Per 222-S Laboratory Quality Assurance Plan (HNR-SD-CP-QAPP-016)☒ Other (list reference document or attach) See Analytical Instructions

18. Special Instructions (Special Storage Requirements, Reporting format, holding times, etc.)

See Analytical Instructions

19. Requested Turnaround Time

☐ 2 Weeks ☐ 4 Weeks☒ Other See AI

20. Sample Received By

Date

Time

21. Chain of Custody

☐ No ☐ Yes

Number: \_\_\_\_\_

Post-it® Fax Note 7671		Date	# of pages ▶
To	Linda. Russell	From	Andrea ✓
Co./Dept.		Co.	
Phone #		Phone #	373-7279
Fax #		Fax #	

Segeenads

WMH-986026

Attachment 5  
Sample Disposition Record

Consisting of 2 pages,  
including cover page

# Sample Disposition Record

Control #: B99-018

Revision#: 0

Date Initiated: 1/21/99

## Section 1 - BACKGROUND

SAF#: B99-039

OU: 100-NR-1

Project ID: 1301-N/1325-N

Task ID: 1

Sampling Event: 1301-N and 1325-N Facility Sampling and Anal

Laboratory: 222-S Lab Operations

Project Coordinator: TRENT, SJ

Task Manager: MUKHERJEE, B

## Section 2 - SAMPLE INFORMATION

Number of Samples: 1

ID Numbers: B0TC01

MATRIX: Soil

Collection Date: 12/17/98

## Section 3 - ISSUE

Class: Lab Direction

NCR Number: N/A

Type: Multiple Phase Sample

Description: Lab is not to analyse water in sample

N/A

NCR Validation (Print/Sign)

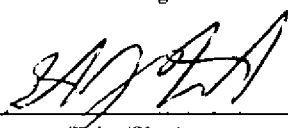
Date

## Section 4 - DISPOSITION

Type: Use As Is

Description: The listed soil sample contained water that had originated from dust suppression activities during sampling. Standing water is to be removed from the sample and not included in the sample analysis.

TRENT, SJ



1/26/99

Project Coordinator (Print/Sign)

Date

MUKHERJEE, B

Task Manager (Print/Sign)

Date

N/A

QA (Print/Sign)

Date

## Section 5 - INSPECTION (Issue Class: Nonconformance Only)

Inspection Number: N/A

Inspection Results: N/A

N/A

Inspector (Print/Sign)

Date

**WMH-9951023**

**Attachment 6**

**Letter of Instruction for the 1301N/1325-N  
100NRI-LO1-001**

**Consisting of 5 pages,  
including cover page**



064154

Job No. 22192  
Written Response Required: NO  
Due Date: N/A  
Actionee: NO  
Closes CCN: N/A  
OU: 100-NR-1  
TSD: 116-N-1, 116-N-3  
ERA: N/A  
Subject Code: 9080

**DEC 16 1998**

Fluor Daniel Hanford, Inc.  
J. L. Jacobsen, Director  
Contract Administration  
P. O. Box 1000, MSIN B3-70  
Richland, Washington 99352

**Subject: LETTER OF INSTRUCTION FOR THE 1301-N/1325-N FACILITY SAMPLE ANALYSIS**

Dear Mr. Jacobsen:

**SUBJECT:**

This letter of Instruction (LOI) is to provide direction for the performance of laboratory analysis of soil samples collected from the 1301-N and 1325-N facilities. Samples are to be analyzed at the 222-S Laboratory.

**WORK ORDER NUMBER:**

Funds supporting the analytical work described in this LOI will be provided by work order #DB9104.

**LOI NUMBER:**

The LOI reference number assigned to this work is #100NR1-LOI-001. This reference number is a sequential log number maintained within the Remedial Action and Waste Disposal (RAWD) Project files.

**NOT TO EXCEED COST ESTIMATE:**

The work order will be supplemented as necessary and will not be exceeded without prior approval from B. Mukherjee, Project Engineer, 100-N Area RAWD Project.

**REFERENCES:**

Work scope identified in this LOI will be performed in accordance with the requirements identified in Attachment 1, *ANALYTICAL INSTRUCTION: 1301-N/1325-N Liquid Waste Disposal Facilities Sample Analytical Requirements*.

**INTRODUCTION:**

The purpose of this LOI is to provide direction to Waste Management Hanford (WMH) and the 222-S Laboratory for chemical and radiological analysis of soil samples collected from the 1301-N and 1325-N facilities.

**OVERALL SCOPE:**

The scope of work defined in this LOI is to provide sample analytical support to the RAWD Project, managed by Bechtel Hanford, Inc. (BHI) as detailed in Attachment 1.

The effective date of this LOI is December 9, 1998 through September 30, 1999.

**SCHEDULE:**

The first sample delivery group is projected to be sent to the 222-S Laboratory on or about the week of December 14, 1998. The laboratory will be given a one-week notice prior to the delivery of the remaining two sample delivery groups.

Individual preliminary results for each sample are due as soon as available but not more than 45 calendar days from sample receipt. A final analytical summary report addressing all samples submitted under this LOI will be due no later than 60 calendar days (excluding holidays) following the submittal of the last sample in the last sample delivery group.

**PROCUREMENT:**

Not applicable.

**WMH is responsible to:**

1. Provide to the BHI Analytical Services Management organization a client services representative who will serve as the primary laboratory point of contact (POC) for this work.
2. Perform sample analysis in accordance with attachment 1.
3. Provide the BHI POC a weekly status of progress of samples through the 222S Laboratory.
4. Notify the BHI POC of any deviations from analytical procedures or the work scope identified in Attachment 1.
5. Not perform work scope defined in the LOI until BHI provides final work approval.

**BHI is responsible to:**

1. Provide, through the BHI Analytical Services Management organization, a POC or designee who will be available for questions relating to the work scope identified in this LOI, and for coordinating sample delivery, schedule, and cost deviations through BHI.
2. Define the work scope and specific analytical requirements.

3. Prepare, or cause to be prepared, specific work orders which reference this LOI for request for WMH services.
4. Make every effort to provide sufficient notification to WMH for laboratory services.

**PERMITS:**

Not applicable.

**SPECIFIC SERVICES REQUIRED/SPECIAL INSTRUCTIONS:**

Currently there are no specific services requested or special instructions to provide WMH outside the scope of this LOI. If specific services beyond those identified in this LOI are needed, or special instructions are necessary, the BHI POC will convey (in writing) these service requests and special instructions to WMH using sample disposition records (SDRs).

**DELIVERABLES:**

Deliverables will include interim preliminary results (as available), and a final analytical summary report for all samples analyzed by the 222-S Laboratory under this LOI. Details regarding the content and schedule for submittal of these deliverables are detailed in attachment 1.

**MEETINGS/REPORTS/ACTIVITIES:**

The WMH client services representative will meet or teleconference with the BHI POC and RAWD Project personnel on a weekly basis to discuss schedule status and technical issues associated with the analysis of the 1301-N and 1325-N facility soil samples. The frequency of the meetings and teleconferences may be adjusted to reflect the 1301-N/1325-N sample load in the laboratory and scope of technical issues associated with the samples. The schedule for these status meetings or teleconferences will be arranged at a later date.

**QA REQUIREMENTS:**

Specific quality assurance requirements are detailed in attachment 1.

**TASK MANAGEMENT:**

Analysis of the 1301-N and 1325-N facility soil samples shall be supervised and managed by WMH in a manner that ensures compliance with the work scope and requirements of this LOI.

**INVOICING REQUIREMENTS:**

Not applicable.

## ACCEPTANCE CRITERIA:

A review of deliverables will be completed upon receipt of the final analytical data report to ensure that the work scope identified in this LOI has been completed in accordance with the requirements of the LOI.

## OTHER:

BHI Point of Contact:	Mr. S. J. Trent	372-9651, or his designee
WMH Point of Contact:	Ms. K. L. Powell	373-7193, or her designee
RA/WD Project Point of Contact:	Mr. C. W. Hedel	372-9602, or his designee

If you have any questions regarding this LOI, please call Mr. S. J. Trent at 372-9651.

Sincerely,



R. L. Donahoe, Task Lead  
Remedial Action and Waste Disposal Project

SJT/jmd

Attachments: (1) Analytical Instructions  
(2) 222-S Cost Estimate  
(3) Work Order DB9104

cc: R. L. Bisping (FDH) N1-26, w/a  
R. A. Esch (WMH) T6-12, w/a  
D. B. Hardy (WMH) T6-12, w/a  
J. E. Hyatt (WMH) T6-14, w/a  
K. L. Powell (WHM) S3-30, w/a  
K. M. Seidel (WMH) S3-30, w/a

# Sample Disposition Record

Control #: B99-018

Revision#: 0

Date Initiated: 1/21/99

## Section 1 - BACKGROUND

SAF#: B99-039

OU: 100-NR-1

Project ID: 1301-N/1325-N

Task ID: 1

Sampling Event: 1301-N and 1325-N Facility Sampling and Anal

Laboratory: 222-S Lab Operations

Project Coordinator: TRENT, SJ

Task Manager: MUKHERJEE, B

## Section 2 - SAMPLE INFORMATION

Number of Samples: 1

ID Numbers: B0TC01

MATRIX: Soil

Collection Date: 12/17/98

## Section 3 - ISSUE

Class: Lab Direction

NCR Number: N/A

Type: Multiple Phase Sample

Description: Lab is not to analyse water in sample

N/A

NCR Validation (Print/Sign)

Date

## Section 4 - DISPOSITION

Type: Use As Is

Description: The listed soil sample contained water that had originated from dust suppression activities during sampling. Standing water is to be removed from the sample and not included in the sample analysis.

TRENT, SJ

Project Coordinator (Print/Sign)

1/26/99

Date

MUKHERJEE, B

Task Manager (Print/Sign)

1/28/99

Date

N/A

QA (Print/Sign)

Date

## Section 5 - INSPECTION (Issue Class: Nonconformance Only)

Inspection Number: N/A

Inspection Results: N/A

N/A

Inspector (Print/Sign)

Date